11.   APPENDIX E: CALCULATED VARIABLES

11.1 PHQ-8

The Patient Health Questionnaire (PHQ)-8 response set was standardized to make it similar to other BRFSS questions by asking the number of days in the past 2 weeks the respondent had experienced a particular depressive symptom. The modified response set was converted back to the original response set: 0 to 1 day="not at all," 2 to 6 days="several days," 7 to 11 days="more than half the days," and 12 to 14 days="nearly every day," with points (0 to 3) assigned to each category, respectively. The scores for each item are summed to produce a total score between 0 and 24 points (*_PHQ8_score*). If a response to any of the 8 questions was missing (i.e. Don't know/Not sure or Refused), a score was not calculated

Five severity categories of depression were defined (*_PHQ8_5depress*):

- None – Minimal depression (0 to 4)
- Mild depression (5 to 9)
- Moderate depression (10 to 14)
- Moderately severe depression (15 to 19)
- Severe depression (20 to 24)

A score of 0 to 9 points, which is no and mild depression, was defined as <u>no depression</u>, while a score of 10 to 24 points, which was moderate, moderately severe and severe depression, was defined as <u>current depression</u> (*_PHQ8_depress*).

VARIABLE	SAS CODE
_PHQ8_score (summation of scores for all 8 questions)	/*DAYS HAD LITTLE PLEASURE DOING THINGS*/ IF ADPLEASR in (**1,88**) THEN AD1 = **0**; ELSE IF ADPLEASR in (**2,3,4,5,6**) THEN AD1 = **1**; ELSE IF ADPLEASR in (**7,8,9,10,11**) THEN AD1 = **2**; ELSE IF ADPLEASR in (**12,13,14**) THEN AD1 = **3**; /*DAYS FELT DOWN, DEPRESSED OR HOPELESS;*/ IF ADDOWN in (**1,88**) THEN AD2 = **0**; ELSE IF ADDOWN in (**2,3,4,5,6**) THEN AD2 = **1**; ELSE IF ADDOWN in (**7,8,9,10,11**) THEN AD2 = **2**; ELSE IF ADDOWN in (**12,13,14**) THEN AD2 = **3**; /*DAYS HAD TROUBLE WITH SLEEP;*/ IF ADSLEEP in (**1,88**) THEN AD3 = **0**; ELSE IF ADSLEEP in (**2,3,4,5,6**) THEN AD3 = **1**; ELSE IF ADSLEEP in (**7,8,9,10,11**) THEN AD3 = **2**; ELSE IF ADSLEEP in (**12,13,14**) THEN AD3 = **3**; /*DAYS WERE TIRED OR HAD LITTLE ENERGY;*/ IF ADENERGY in (**1,88**) THEN AD4 = **0**; ELSE IF ADENERGY in (**2,3,4,5,6**) THEN AD4 = **1**; ELSE IF ADENERGY in (**7,8,9,10,11**) THEN AD4 = **2**; ELSE IF ADENERGY in (**12,13,14**) THEN AD4 = **3**; /*DAYS ATE TOO LITTLE OR TOO MUCH;*/ IF ADEAT1 in (**1,88**) THEN AD5 = **0**; ELSE IF ADEAT1 in (**2,3,4,5,6**) THEN AD5 = **1**; ELSE IF ADEAT1 in (**7,8,9,10,11**) THEN AD5 = **2**; ELSE IF ADEAT1 in (**12,13,14**) THEN AD5 = **3**; /*DAYS FELT LIKE FAILURE OR LET FAMILY DOWN;*/ IF ADFAIL in (**1,88**) THEN AD6 = **0**; ELSE IF ADFAIL in (**2,3,4,5,6**) THEN AD6 = **1**; ELSE IF ADFAIL in (**7,8,9,10,11**) THEN AD6 = **2**; ELSE IF ADFAIL in (**12,13,14**) THEN AD6 = **3**;

	/*DAYS HAD TROUBLE CONCENTRATING;*/ IF ADTHINK in (**1,88**) THEN AD7 = **0**; ELSE IF ADTHINK in (**2,3,4,5,6**) THEN AD7 = **1**; ELSE IF ADTHINK in (**7,8,9,10,11**) THEN AD7 = **2**; ELSE IF ADTHINK in (**12,13,14**) THEN AD7 = **3**; /*DAYS TALKED TO MOVE SLOWER OR FASTER THAN USUAL;*/ IF ADMOVE in (**1,88**) THEN AD8 = **0**; ELSE IF ADMOVE in (**2,3,4,5,6**) THEN AD8 = **1**; ELSE IF ADMOVE in (**7,8,9,10,11**) THEN AD8 = **2**; ELSE IF ADMOVE in (**12,13,14**) THEN AD8 = **3**; IF AD1 in (**0,1,2,3**) & AD2 in (**0,1,2,3**) & AD3 in (**0,1,2,3**) & AD4 in (**0,1,2,3**) & AD5 in (**0,1,2,3**) & AD6 in (**0,1,2,3**) & AD7 in (**0,1,2,3**) & AD8 in (**0,1,2,3**) THEN _PHQ8_score_ = AD1 + AD2 + AD3 + AD4 + AD5 + AD6 + AD7 +AD8;

_PHQ8_5depress_
(5 depression severity categories)
	if **0**<=_PHQ8_score_ <=**4** then _PHQ8_5depress_ =**1**; *none;
	if **5**<=_PHQ8_score_ <=**9** then _PHQ8_5depress_ =**2**; *mild;
	if **10**<=_PHQ8_score_ <=**14** then _PHQ8_5depress_ =**3**; *moderate;
	if **15**<=_PHQ8_score_ <=**19** then _PHQ8_5depress_ =**4**; *moderately severe;
	if _PHQ8_score_ >=**20** then _PHQ8_5depress_ =**5**; *severe;

_PHQ8_depress_
(identifies scores ≥10 as current depression)
	*>=10 cutpoint;
	
	if _PHQ8_5depress_ in (**1,2**) then _PHQ8_depress_ =**0**; *no current depression;
	if _PHQ8_5depress_ in (**3,4,5**) then _PHQ8_depress_ =**1**; *Current depression;

11.2 GAD-7

The Generalized Anxiety Disorder (GAD)-7 response set was standardized to make it similar to other BRFSS questions by asking the number of days in the past 2 weeks the respondent had experienced generalized anxiety symptoms. The modified response set was converted back to the original response set: 0 to 1 day="not at all," 2 to 6 days="several days," 7 to 11 days="more than half the days," and 12 to 14 days="nearly every day," with points (0 to 3) assigned to each category, respectively. The scores for each item are summed to produce a total score between 0 and 21 points (_GAD7_score). If a response to any of the 7 questions was missing (i.e. Don't know/Not sure or Refused), a score was not calculated.

Four severity categories of GAD were defined (_GSD7_4anxiety):

- None – Minimal GAD (0 to 4)
- Mild GAD (5 to 9)
- Moderate GAD (10 to 14)
- Severe GAD (15 to 21)

A score of 0 to 9 points, which is minimal and mild generalized anxiety, was defined as no GAD, while a score of 10 to 21 points, which was moderate and severe generalized anxiety, was defined as current GAD (_GAD7_anxiety).

VARIABLE	SAS CODE

_GAD7_score
(summation of scores for all 7 questions)
	/*nervous, anxious, or on edge*/
	IF Anxdis1 in (**1,88**) THEN AN1 = **0**;
	ELSE IF Anxdis1 in (**2,3,4,5,6**) THEN AN1 = **1**;
	ELSE IF Anxdis1 in (**7,8,9,10,11**) THEN AN1 = **2**;
	ELSE IF Anxdis1 in (**12,13,14**) THEN AN1 = **3**;
	  /*not able to stop or control worrying;*/
	IF Anxdis2 in (**1,88**) THEN AN2 = **0**;
	ELSE IF anxdis2 in (**2,3,4,5,6**) THEN AN2 = **1**;
	ELSE IF anxdis2 in (**7,8,9,10,11**) THEN AN2 = **2**;
	ELSE IF anxdis2 in (**12,13,14**) THEN AN2 = **3**;
	  /*worried too much about different things;*/
	IF Anxdis3 in (**1,88**) THEN AN3 = **0**;
	ELSE IF Anxdis3 in (**2,3,4,5,6**) THEN AN3 = **1**;
	ELSE IF Anxdis3 in (**7,8,9,10,11**) THEN AN3 = **2**;
	ELSE IF Anxdis3 in (**12,13,14**) THEN AN3 = **3**;
	 /*trouble relaxing;*/
	IF Anxdis4 in (**1,88**) THEN AN4 = **0**;
	ELSE IF Anxdis4 in (**2,3,4,5,6**) THEN AN4 = **1**;
	ELSE IF Anxdis4 in (**7,8,9,10,11**) THEN AN4 = **2**;
	ELSE IF Anxdis4 in (**12,13,14**) THEN AN4 = **3**;
	   /*restless;*/
	IF Anxdis5 in (**1,88**) THEN AN5 = **0**;
	ELSE IF Anxdis5 in (**2,3,4,5,6**) THEN AN5 = **1**;
	ELSE IF anxdis5 in (**7,8,9,10,11**) THEN AN5 = **2**;
	ELSE IF anxdis5 in (**12,13,14**) THEN AN5 = **3**;
	  /*easily annoyed or irritated;*/
	IF Anxdis6 in (**1,88**) THEN AN6 = **0**;
	ELSE IF Anxdis6 in (**2,3,4,5,6**) THEN AN6 = **1**;
	ELSE IF Anxdis6 in (**7,8,9,10,11**) THEN AN6 = **2**;
	ELSE IF Anxdis6 in (**12,13,14**) THEN AN6 = **3**;
	  /*DAYS HAD TROUBLE CONCENTRATING;*/
	IF Anxdis7 in (**1,88**) THEN AN7 = **0**;
	ELSE IF Anxdis7 in (**2,3,4,5,6**) THEN AN7 = **1**;
	ELSE IF Anxdis7 in (**7,8,9,10,11**) THEN AN7 = **2**;
	ELSE IF Anxdis7 in (**12,13,14**) THEN AN7 = **3**;

	IF AN1 in (**0,1,2,3**) & AN2 in (**0,1,2,3**) & AN3 in (**0,1,2,3**) & AN4 in (**0,1,2,3**) & AN5 in (**0,1,2,3**) & AN6 in (**0,1,2,3**) & AN7 in (**0,1,2,3**) THEN _GAD7_score = AN1 + AN2 + AN3 + AN4 + AN5 + AN6 + AN7;

_GSD7_4anxiety
(4 GAD severity categories)
	if **0**<=_GAD7_score <=**4** then _GSD7_4anxiety =**1**; *none;
	if **5**<=_GAD7_score <=**9** then _GSD7_4anxiety =**2**; *mild;
	if **10**<=_GAD7_score <=**14** then _GSD7_4anxiety =**3**; *moderate;
	if **15**<=_GAD7_score <=**21** then _GSD7_4anxiety =**4**; *severe;

_GAD7_anxiety (identifies scores ≥10 as current GAD)	if _GSD7_4anxiety in (**1,2**) then _GAD7_anxiety =**0**; *no current anxiety; if _GSD7_4anxiety in (**3,4**) then _GAD7_anxiety =**1**; *current anxiety;

11.3 SELF-MASTERY

GSPS respondents were provided 5 statements on self-mastery adapted from the Self-Mastery Scale [6] and responses were scored 1 to 5 (strongly agree, agree, neither agree or disagree, disagree, strongly disagree), where 1 indicated less control. Ordering of the first question (COPE1) was reversed when calculating the total score. If a response to any of the 5 questions was missing (i.e. Don't know/Not sure or Refused), a score was not calculated.

1. How strongly do you agree or disagree that: I have little control over the things that happen to me. (COPE1)
2. How strongly do you agree or disagree that: What happens to me in the future mostly depends on me. (COPE2)
3. How strongly do you agree or disagree that: I can do just about anything I really set my mind to do. (COPE3)
4. How strongly do you agree or disagree that: I am confident in my ability to handle unexpected problems. (COPE4)
5. How strongly do you agree or disagree that:] When I need suggestions about how to deal with a personal problem, I know there is someone I can turn to. (COPE5)

A composite self-mastery scale (range from 5 to 25) was created by summing scores from the five questions (*_cope5_score)*, with higher scores indicating higher self-mastery.

Variable	SAS Code

(*_cope5_score)* summation of scores from the 5 questions	** Mastery Scale **;
	 ** coping **;
	
	 IF cope1 in (**1,2,3,4,5**) & cope2 in (**1,2,3,4,5**) & cope3 in (**1,2,3,4,5**) & cope4 in (**1,2,3,4,5**) & cope5 in (**1,2,3,4,5**)
	 then DO;
	   rcope1= **6**-cope1;
	   _cope5_score= rcope1 + cope2 + cope3 + cope4 +cope5;
	 END;
	 ELSE *_cope5_score*=**.**;

11.4 HEAVY DRINKING

The GSPS calculated heavy drinking according to the CDC's definition which is women having more than 1 drink per day or men having more than 2 drinks per day in the past 30 days. The calculated variable for heavy drinking (*_RFDRHV3)* is derived from ALCDAY4 and AVEDRNK2.

Heavy Drinking (_RFDRHV3)		
1	NO	Male respondents that reported having 2 drinks per day or less, or female respondents that reported having 1 drink per day or less. (Sex=1 and _DRNKDY3 <= 2 or Sex=2 and _DRNKDY3 <= 1 or ALCDAY4=888)
2	YES	Male respondents that reported having more than 2 drinks per day, or female respondents that reported having more than 1 drink per day. (Sex=1 and _DRNKDY3 > 2 or Sex=2 and _DRNKDY3 > 1)
9	Don't Know/ Refused/Missing	Respondents with don´t know, refused or missing responses for ALCDAY4 or _DRNKDY3. (ALCDAY4=997, 999, or missing, or _DRNKDY3=99, or missing)

	SAS Code	/* _RFDRHV3*/
		
		IF ALCDAY4 NOTIN (**888**,**997**, **999**,**.**) THEN DO;
		 IF **101** LE ALCDAY4 LE **107**
		   THEN DROCDY2_=(ALCDAY4-**100**)/**7**;
		 ELSE IF **201** LE ALCDAY4 LE **230**
		    THEN DROCDY2_=(ALCDAY4-**200**)/**30**;
		 END;
		ELSE IF ALCDAY4 EQ **888** THEN DROCDY2_=**0**;
		ELSE DROCDY2_=**9**; *Don't know/not sure/missing;
		
		IF DROCDY2_ = **0** THEN _DRNKDY3=**0**;
		ELSE IF DROCDY2_ = **9** THEN _DRNKDY3=**99**;
		ELSE IF AVEDRNK2 IN (**.**,**97**,**99**) THEN _DRNKDY3=**99**;
		ELSE _DRNKDY3=AVEDRNK2 * DROCDY2_;
		
		IF SEX=**1** AND _DRNKDY3 NOTIN (**99**,**.**) THEN DO;
		 IF _DRNKDY3 GT **2** THEN _RFDRHV3=**2**;
		 ELSE IF _DRNKDY3 LE **2** THEN _RFDRHV3=**1**;
		END;
		 ELSE IF SEX=**2** AND _DRNKDY3 NOTIN (**99**,**.**) THEN DO;
		 IF _DRNKDY3 GT **1** THEN _RFDRHV3=**2**;
		ELSE IF _DRNKDY3 LE **1** THEN _RFDRHV3=**1**;
		END;
		 ELSE IF ALCDAY4 EQ **888** THEN _RFDRHV3=**1**;
		ELSE _RFDRHV3=**9**; *Don't know/not sure/missing;

11.5 BINGE DRINKING

The GSPS calculated binge drinking according to the CDC's definition which is women having four or more drinks on one occasion or men having five or more drinks on one occasion in the past 30 days. The calculated variable for binge drinking (*_RFBING4)* is derived from ALCDAY4 and DRNK3GE5.

Binge Drinking (_RFBING4)		
1	NO	Respondents that reported they did not drink in the past 30 days, or those that report that they did drink alcohol in the past 30 days but did not report having five or more drinks (for men) or having four or more drinks (for women) of alcohol on an occasion. (ALCDAY4<231 and DRNK3GE5=88; or ALCDAY4=888)
2	YES	Respondents that reported they did drink in the past 30 days and had five or more drinks (for men) or had four or more drinks (for women) on one or more occasions in the past month. (ALCDAY4<231 and 1<=DRNK3GE5<=76)
9	Don't Know/ Refused/Missing	Respondents that reported that they did not know if they had consumed five or more drinks (for men) or consumed four or more drinks (for women) of alcohol on one occasion or refused to answer if they had consumed five or more drinks of alcohol on one occasion or those with missing responses. (DRNK3GE5=97, 99, missing; or ALCDAY4=997, 999, missing)

	SAS Code	/* _RFBING4 */
		
		IF ALCDAY4 NOTIN (**888**) THEN DO;
		 IF **1** LE DRNK3GE5 LE **76** THEN _RFBING4=**2**;
		  ELSE IF DRNK3GE5 IN (**.,97,99**) THEN _RFBING4=**9**;
		  ELSE IF DRNK3GE5 IN (**88**) THEN _RFBING4=**1**;
		END;
		ELSE IF ALCDAY4 = **888** THEN _RFBING4=**1**;
		ELSE _RFBING4=**9**; *Don't know/not sure/missing;
		
		The format is:
		 /* _RFBING4 */
		 value _RFBING
		   1 = "No"
		   2 = "Yes"
		   9 = "Don't know/ Refused/ Missing"

11.6 SMOKING STATUS

The GSPS calculated 4-level smoking status: *everyday smoker, someday smoker, former smoker, non-smoker.* The calculated variable for smoking status (*_SMOKER3*) is derived from SMOKE100 and SMOKDAY2

Smoking status (*_SMOKER3*)		
1	Current smoker - now smokes every day	Respondents that reported having smoked at least 100 cigarettes in their lifetime and now smoke every day. (SMOKE100=1 and SMOKDAY2=1)
2	Current smoker - now smokes some days	Respondents that reported having smoked at least 100 cigarettes in their lifetime and now smoke some days. (SMOKE100=1 and SMOKDAY2=2)
3	Former smoker	Respondents that reported having smoked at least 100 cigarettes in their lifetime and currently do not smoke. (SMOKE100=1 and SMOKDAY2=3)
4	Never smoked	Respondents that reported they had not smoked at least 100 cigarettes in their lifetime. (SMOKE100=2)
9	Don't know/ Refused/ Missing	Respondents that reported they didn't know if they had smoked 100 cigarettes in their lifetime, those that refused to answer if they had smoked 100 cigarettes in their lifetime, those that didn't know if they now smoked every day, some days or not at all, those that refused to answer if they now smoked every day, some days or not at all, or those with missing responses. (SMOKE100=97, 99, missing; or SMOKDAY2=97, 99, missing)
| | SAS Code | ```
/* _SMOKER3 and _SMOKER2 */

IF SMOKE100=2   THEN _SMOKER3=4;
ELSE IF SMOKE100=1 THEN DO;
  IF SMOKDAY2=1 THEN _SMOKER3=1;
  ELSE IF SMOKDAY2=2 THEN _SMOKER3=2;
  ELSE IF SMOKDAY2=3 THEN _SMOKER3=3;
ELSE _SMOKER3=9;
END;
 ELSE _SMOKER3=9; *Don't know/not sure/missing;


IF _SMOKER3 IN (1,2) THEN _SMOKER2=1;*Current smoker-
every day or some days;
 ELSE IF _SMOKER3 IN (3,4) THEN _SMOKER2=2;*not
current smoker-former smoker or never smoked;
 ELSE _SMOKER2=9;*Don't know/not sure/missing;
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